Get ready to use EDirect

Step-by-step tutorial for Mac or Linux operating systems

Entrez Direct (EDirect) is a software package that provides access to NCBI's interconnected databases (publication, sequence, structure, gene, variation, expression, etc.). **EDirect** enables searching, linking to related records, retrieval of information, and extraction of specific data elements. You can easily combine individual operations in multi-step workflows to create custom datasets and generate reports.

EDirect is designed to run in a **Unix** command line environment and requires the **Perl** language interpreter to run its commands.

Unix command line environment: **Unix** has been around a long time and is still a good operating system for issuing instructions to a computer by typing commands on a line. Although we now have more modern ways of interacting with a computer (graphical user interface with the ability to do mouse clicks or touch the screen), using a command line interface (in a terminal window) is still a powerful and flexible way of telling a computer what to do.

Perl programming language: **Perl**, developed in the late 1980s and often referred to as the Swiss Army chainsaw of scripting languages, was adopted early and often as a common language for bioinformatics as it is powerful, accessible, and adaptable. **EDirect** uses some Perl commands, so to install and use **EDirect**, you will make sure that the Perl programming language is installed on your system.

① Install EDirect

To install EDirect, first open your Mac or Linux terminal window. Then, go to the EDirect help document (http://bit.ly/EDirectHelpDoc) and scroll down to *"Getting Started > Installation"*. Copy and paste the text below into the terminal window.

```
cd ~
/bin/bash
perl -MNet::FTP -e \
    '$ftp = new Net::FTP("ftp.ncbi.nlm.nih.gov", Passive => 1);
    $ftp->login; $ftp->binary;
    $ftp->get("/entrez/entrezdirect/edirect.tar.gz");'
gunzip -c edirect.tar.gz | tar xf -
rm edirect.tar.gz
builtin exit
export PATH=$PATH:$HOME/edirect >& /dev/null || setenv PATH "${PATH}:$HOME/edirect"
./edirect/setup.sh
```

▶ YouTube

Video of this tutorial at
https://youtu.be/hTzqsb1eD10

If you see the following message:

```
In order to complete the configuration process, please execute the following:
echo "export PATH=\$PATH:\$HOME/edirect" >> $HOME/.bash_profile
```

Copy and paste the line shown above (beginning with echo) into your terminal window.

Once the installation is complete, you may the following message in your terminal window:

```
Entrez Direct has been successfully downloaded and installed.
```

② Test your EDirect installation

To confirm that EDirect is installed and working properly, run your first EDirect script!

Type the following into your terminal window and press Enter.

```
esearch -help
```

You should see this printed on the screen:

```
esearch 8.30
Query Specification
    -db       Database name
    -query    Query string
......
```

The 8.30 version shown on your screen is likely different as this program updates regularly.

Then type the following into your terminal window and press Enter.

```
xtract -help
```

You should see this printed on the screen:

```
xtract 8.30
Overview
  Xtract uses command-line arguments to convert XML data into a tab-delimited table.
  -pattern places the data from individual records into separate rows.
  -element extracts values from specified fields into separate columns.
  -group, -block, and -subset limit element exploration to selected XML subregions.

Processing Flags
  -strict           Remove HTML and MathML tags
  -mixed            Allow PubMed mixed content (Please note, the 8.30 version shown on your screen
......
```

You have now installed EDirect successfully and can begin using it!

Questions or feedback?
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